

SEQUENCE LISTING

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<120> USES OF ANTI-INSULIN-LIKE GROWTH FACTOR I RECEPTOR ANTIBODIES

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40 Tyr Ala Ala Ser Arg Leu His Arg Gly Val Pro Ser Arg Phe Ser Gly
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Gly Val Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr
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Ser Ala Ile Ser Gly Ser Gly Gly Ile Thr Tyr Tyr Ala Asp Ser Val
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Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
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35 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
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Thr Ser Lys Asn Gln Phe Ser Leu Lys Leu Ser Ser Val Thr Ala Ala
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 Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
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35 40 45
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| | Thr | Val | Glu | Arg | Lys | Cys | Cys | Val | Glu | Cys | Pro | Pro | Cys | Pro | Ala | Pro |
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| 20 | Pro | Val | Ala | Gly | Pro | Ser | Val | Phe | Leu | Phe | Pro | Pro | Lys | Pro | Lys | Asp |
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| 25 | | 130 | | | | | 135 | | | | | 140 | | | | |
| | Val | Ser | His | Glu | Asp | Pro | Glu | Val | Gln | Phe | Asn | Trp | Tyr | Val | Asp | Gly |
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| | | | | 275 | | | | 280 | | | | | 285 | | | |
| | Leu | Thr | Val | Asp | Lys | Ser | Arg | Trp | Gln | Gln | Gly | Asn | Val | Phe | Ser | Cys |
| 55 | | 290 | | | | | 295 | | | | | 300 | | | | |
| | Ser | Val | Met | His | Glu | Ala | Leu | His | Asn | His | Tyr | Thr | Gln | Lys | Ser | Leu |

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305          310          315          320
Ser Leu Ser Pro Gly Lys
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15 ccaggggaagg ggctggagtg ggtttcatac attagtagta gtggtagtac catatactac 180
gcagactctg tgaagggccg attcaccatc tccagggaca acgccaagaa ctcactgtat 240
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20 <210> 30
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25 <400> 30
Gln Val Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys Pro Gly Gly
   1             5             10             15

Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Asp Tyr
30      20             25             30

Tyr Met Ser Trp Ile Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
      35             40             45

35 Ser Tyr Ile Ser Ser Ser Gly Ser Thr Ile Tyr Tyr Ala Asp Ser Val
   50             55             60

Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn Ser Leu Tyr
   65             70             75             80

40 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
      85             90             95

Ala Arg

45

<210> 31
<211> 296
50 <212> DNA
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55 tcctgtgcag cctctggatt caccttttagc agctatgcca tgagctgggt ccgccaggct 120
ccaggggaagg ggctggagtg ggtctcagct attagtggta gtggtagtag cacatactac 180
gcagactccg tgaagggccg gttcaccatc tccagagaca attccaagaa cacgctgtat 240

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ctgcaaatga acagcctgag agccgaggac acggccgtat attactgtgc gaaaga 296

5 <210> 32
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10 <400> 32
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1 5 10 15
Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe Ser Ser Tyr
20 25 30
15 Ala Met Ser Trp Val Arg Gln Ala Pro Gly Lys Gly Leu Glu Trp Val
35 40 45
Ser Ala Ile Ser Gly Ser Gly Gly Ser Thr Tyr Tyr Ala Asp Ser Val
20 50 55 60
Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ser Lys Asn Thr Leu Tyr
65 70 75 80
25 Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Lys

30

<210> 33
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35 <213> Homo sapiens

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acctgcgctg tctctggtgg ctccatcagc agtagtaact ggtggagttg ggtccgccag 120
40 cccccaggga aggggctgga gtggattggg gaaatctatc atagtgggag caccaactac 180
aaccgcgtccc tcaagagtcg agtcaccata tcagtagaca agtccaagaa ccagttctcc 240
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45 <210> 34
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<212> PRT
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50 <400> 34
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1 5 10 15
Thr Leu Ser Leu Thr Cys Ala Val Ser Gly Gly Ser Ile Ser Ser Ser
55 20 25 30
Asn Trp Trp Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp

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          35          40          45
Ile Gly Glu Ile Tyr His Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu
      50          55          60
5
Lys Ser Arg Val Thr Ile Ser Val Asp Lys Ser Lys Asn Gln Phe Ser
      65          70          75          80
10
Leu Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys
      85          90          95
Ala Arg

15
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ccagggaagg gactggagtg gattgggtat atctattaca gtgggagcac caactacaac 180
ccctccctca agagtcgagt caccatatca gtagacacgt ccaagaacca gttctccctg 240
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Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
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Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr
      20          25          30
40
Tyr Trp Ser Trp Ile Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Ile
      35          40          45
45
Gly Tyr Ile Tyr Tyr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
      50          55          60
Ser Arg Val Thr Ile Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
      65          70          75          80
50
Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
      85          90          95
Arg

55
<210> 37

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   cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180
   gacaggttca gtggcagtgg gtctgggaca gacttcactc tcaccatcag cagactggag 240
10 cctgaagatt ttgcagtgtg ttactgtcag cagtatggta gctcacctcc 290

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<211> 96
15 <212> PRT
   <213> Homo sapiens

   <400> 38
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20   1 5 10 15

   Glu Arg Ala Thr Leu Ser Cys Arg Ala Ser Gln Ser Val Ser Ser Ser
   20 25 30

25 Tyr Leu Ala Trp Tyr Gln Gln Lys Pro Gly Gln Ala Pro Arg Leu Leu
   35 40 45

   Ile Tyr Gly Ala Ser Ser Arg Ala Thr Gly Ile Pro Asp Arg Phe Ser
   50 55 60

30 Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Arg Leu Glu
   65 70 75 80

   Pro Glu Asp Phe Ala Val Tyr Tyr Cys Gln Gln Tyr Gly Ser Ser Pro
35   85 90 95

40

<210> 39
<211> 288
<212> DNA
<213> Homo sapiens

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   gggaaagccc ctaagcgctt gatctatgct gcatccagtt tgcaaagtgg ggtcccatca 180
50 aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcag cctgcagcct 240
   gaagattttg caacttatta ctgtctacag cataatagtt accctccn 288

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55 <211> 96
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 5 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Gly Ile Arg Asn Asp
 20 25 30
 10 Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Arg Leu Ile
 35 40 45
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 15 Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
 65 70 75 80
 Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln His Asn Ser Tyr Pro Pro
 85 90 95
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 25 <210> 41
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 gggaaagccc ctaagctcct gatctatgct gcacccagtt tgcaaagtgg ggtcccatca 180
 aggttcagtg gcagtggtac tgggacagat ttcactctca ccacagcag tctgcaacct 240
 35 gaagattttg caacttacta ctgtcaacag agttacagta cccctcch 288
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 40 <212> PRT
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 Asp Arg Val Thr Ile Thr Cys Arg Ala Ser Gln Ser Ile Ser Ser Tyr
 20 25 30
 50 Leu Asn Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys Leu Leu Ile
 35 40 45
 Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val Pro Ser Arg Phe Ser Gly
 50 55 60
 55 Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
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Glu Asp Phe Ala Thr Tyr Tyr Cys Gln Gln Ser Tyr Ser Thr Pro Pro
85 90 95

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10 <211> 293
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gccgggaagg gactggagtg gattgggcgt atctatacca gtgggagcac caactacaac 180
ccctccctca agagtcgagt caccatgtca gtagacacgt ccaagaacca gttctccctg 240
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<210> 44
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25 <213> Homo sapiens

<400> 44
Gln Val Gln Leu Gln Glu Ser Gly Pro Gly Leu Val Lys Pro Ser Glu
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30 Thr Leu Ser Leu Thr Cys Thr Val Ser Gly Gly Ser Ile Ser Ser Tyr
20 25 30
35 Tyr Trp Ser Trp Ile Arg Gln Pro Ala Gly Lys Gly Leu Glu Trp Ile
35 40 45
Gly Arg Ile Tyr Thr Ser Gly Ser Thr Asn Tyr Asn Pro Ser Leu Lys
50 55 60
40 Ser Arg Val Thr Met Ser Val Asp Thr Ser Lys Asn Gln Phe Ser Leu
65 70 75 80
Lys Leu Ser Ser Val Thr Ala Ala Asp Thr Ala Val Tyr Tyr Cys Ala
85 90 95
45 Arg

50 <210> 45
<211> 470
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55 <400> 45
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1 5 10 15

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|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | Val | Gln | Cys | Glu | Val | Gln | Leu | Leu | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | |
| | | | | 20 | | | | | 25 | | | | | 30 | | | |
| 5 | Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Thr | Ala | Ser | Gly | Phe | Thr | Phe | |
| | | | 35 | | | | | 40 | | | | | 45 | | | | |
| | Ser | Ser | Tyr | Ala | Met | Asn | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | |
| | | 50 | | | | | 55 | | | | | 60 | | | | | |
| 10 | Glu | Trp | Val | Ser | Ala | Ile | Ser | Gly | Ser | Gly | Gly | Thr | Thr | Phe | Tyr | Ala | |
| | 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| | Asp | Ser | Val | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Arg | Thr | |
| 15 | | | | | 85 | | | | 90 | | | | | 95 | | | |
| | Thr | Leu | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | |
| | | | | 100 | | | | | 105 | | | | | 110 | | | |
| 20 | Tyr | Tyr | Cys | Ala | Lys | Asp | Leu | Gly | Trp | Ser | Asp | Ser | Tyr | Tyr | Tyr | Tyr | |
| | | | 115 | | | | | 120 | | | | | 125 | | | | |
| | Tyr | Gly | Met | Asp | Val | Trp | Gly | Gln | Gly | Thr | Thr | Val | Thr | Val | Ser | Ser | |
| | | 130 | | | | | 135 | | | | | 140 | | | | | |
| 25 | Ala | Ser | Thr | Lys | Gly | Pro | Ser | Val | Phe | Pro | Leu | Ala | Pro | Cys | Ser | Arg | |
| | 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| | Ser | Thr | Ser | Glu | Ser | Thr | Ala | Ala | Leu | Gly | Cys | Leu | Val | Lys | Asp | Tyr | |
| 30 | | | | | 165 | | | | | 170 | | | | 175 | | | |
| | Phe | Pro | Glu | Pro | Val | Thr | Val | Ser | Trp | Asn | Ser | Gly | Ala | Leu | Thr | Ser | |
| | | | | 180 | | | | | 185 | | | | | 190 | | | |
| 35 | Gly | Val | His | Thr | Phe | Pro | Ala | Val | Leu | Gln | Ser | Ser | Gly | Leu | Tyr | Ser | |
| | | | 195 | | | | | 200 | | | | | 205 | | | | |
| | Leu | Ser | Ser | Val | Val | Thr | Val | Pro | Ser | Ser | Asn | Phe | Gly | Thr | Gln | Thr | |
| | | 210 | | | | | 215 | | | | | 220 | | | | | |
| 40 | Tyr | Thr | Cys | Asn | Val | Asp | His | Lys | Pro | Ser | Asn | Thr | Lys | Val | Asp | Lys | |
| | 225 | | | | | 230 | | | | | 235 | | | | 240 | | |
| | Thr | Val | Glu | Arg | Lys | Cys | Cys | Val | Glu | Cys | Pro | Pro | Cys | Pro | Ala | Pro | |
| 45 | | | | | 245 | | | | | 250 | | | | | 255 | | |
| | Pro | Val | Ala | Gly | Pro | Ser | Val | Phe | Leu | Phe | Pro | Pro | Lys | Pro | Lys | Asp | |
| | | | | 260 | | | | | 265 | | | | | 270 | | | |
| 50 | Thr | Leu | Met | Ile | Ser | Arg | Thr | Pro | Glu | Val | Thr | Cys | Val | Val | Val | Asp | |
| | | | 275 | | | | | 280 | | | | | 285 | | | | |
| | Val | Ser | His | Glu | Asp | Pro | Glu | Val | Gln | Phe | Asn | Trp | Tyr | Val | Asp | Gly | |
| | | 290 | | | | | 295 | | | | | 300 | | | | | |
| 55 | Val | Glu | Val | His | Asn | Ala | Lys | Thr | Lys | Pro | Arg | Glu | Glu | Gln | Phe | Asn | |
| | 305 | | | | | 310 | | | | | 315 | | | | | 320 | |

| | | | | | | | | | | | | | | | | | |
|----|-------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | Ser | Thr | Phe | Arg | Val | Val | Ser | Val | Leu | Thr | Val | Val | His | Gln | Asp | Trp | |
| | | | | | 325 | | | | | 330 | | | | | 335 | | |
| 5 | Leu | Asn | Gly | Lys | Glu | Tyr | Lys | Cys | Lys | Val | Ser | Asn | Lys | Gly | Leu | Pro | |
| | | | | 340 | | | | | 345 | | | | | 350 | | | |
| | Ala | Pro | Ile | Glu | Lys | Thr | Ile | Ser | Lys | Thr | Lys | Gly | Gln | Pro | Arg | Glu | |
| | | | 355 | | | | | 360 | | | | | 365 | | | | |
| 10 | Pro | Gln | Val | Tyr | Thr | Leu | Pro | Pro | Ser | Arg | Glu | Glu | Met | Thr | Lys | Asn | |
| | | 370 | | | | | 375 | | | | | 380 | | | | | |
| | Gln | Val | Ser | Leu | Thr | Cys | Leu | Val | Lys | Gly | Phe | Tyr | Pro | Ser | Asp | Ile | |
| 15 | 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| | Ala | Val | Glu | Trp | Glu | Ser | Asn | Gly | Gln | Pro | Glu | Asn | Asn | Tyr | Lys | Thr | |
| | | | | 405 | | | | | 410 | | | | | | 415 | | |
| 20 | Thr | Pro | Pro | Met | Leu | Asp | Ser | Asp | Gly | Ser | Phe | Phe | Leu | Tyr | Ser | Lys | |
| | | | | 420 | | | | | 425 | | | | | 430 | | | |
| | Leu | Thr | Val | Asp | Lys | Ser | Arg | Trp | Gln | Gln | Gly | Asn | Val | Phe | Ser | Cys | |
| | | 435 | | | | | | 440 | | | | | 445 | | | | |
| 25 | Ser | Val | Met | His | Glu | Ala | Leu | His | Asn | His | Tyr | Thr | Gln | Lys | Ser | Leu | |
| | 450 | | | | | | 455 | | | | | 460 | | | | | |
| | Ser | Leu | Ser | Pro | Gly | Lys | | | | | | | | | | | |
| 30 | 465 | | | | | 470 | | | | | | | | | | | |
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| | <211> | 470 | | | | | | | | | | | | | | | |
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| | <213> | Homo sapiens | | | | | | | | | | | | | | | |
| | <400> | 46 | | | | | | | | | | | | | | | |
| 40 | Met | Glu | Phe | Gly | Leu | Ser | Trp | Leu | Phe | Leu | Val | Ala | Ile | Leu | Lys | Gly | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | Val | Gln | Cys | Glu | Val | Gln | Leu | Leu | Glu | Ser | Gly | Gly | Gly | Leu | Val | Gln | |
| | | | | 20 | | | | | 25 | | | | | 30 | | | |
| 45 | Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Phe | Thr | Phe | |
| | | | 35 | | | | | 40 | | | | | 45 | | | | |
| | Ser | Ser | Tyr | Ala | Met | Ser | Trp | Val | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | |
| | | 50 | | | | | 55 | | | | | 60 | | | | | |
| 50 | Glu | Trp | Val | Ser | Ala | Ile | Ser | Gly | Ser | Gly | Gly | Ser | Thr | Tyr | Tyr | Ala | |
| | 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| | Asp | Ser | Val | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ser | Lys | Asn | |
| 55 | | | | | 85 | | | | | 90 | | | | | 95 | | |
| | Thr | Leu | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | |

| | 100 | | | | | 105 | | | | | 110 | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Tyr | Tyr | Cys | Ala | Lys | Gly | Tyr | Ser | Ser | Gly | Trp | Tyr | Tyr | Tyr | Tyr |
| | | | 115 | | | | | 120 | | | | | 125 | | |
| 5 | Tyr | Gly | Met | Asp | Val | Trp | Gly | Gln | Gly | Thr | Thr | Val | Thr | Val | Ser |
| | | 130 | | | | | 135 | | | | | 140 | | | Ser |
| 10 | Ala | Ser | Thr | Lys | Gly | Pro | Ser | Val | Phe | Pro | Leu | Ala | Pro | Cys | Arg |
| | 145 | | | | | 150 | | | | | 155 | | | | 160 |
| | Ser | Thr | Ser | Glu | Ser | Thr | Ala | Ala | Leu | Gly | Cys | Leu | Val | Lys | Tyr |
| | | | | | 165 | | | | | 170 | | | | 175 | |
| 15 | Phe | Pro | Glu | Pro | Val | Thr | Val | Ser | Trp | Asn | Ser | Gly | Ala | Leu | Ser |
| | | | | 180 | | | | | 185 | | | | | 190 | |
| | Gly | Val | His | Thr | Phe | Pro | Ala | Val | Leu | Gln | Ser | Ser | Gly | Leu | Ser |
| | | | 195 | | | | | 200 | | | | | 205 | | |
| 20 | Leu | Ser | Ser | Val | Val | Thr | Val | Pro | Ser | Ser | Asn | Phe | Gly | Thr | Thr |
| | | 210 | | | | | 215 | | | | | 220 | | | |
| 25 | Tyr | Thr | Cys | Asn | Val | Asp | His | Lys | Pro | Ser | Asn | Thr | Lys | Val | Lys |
| | 225 | | | | | 230 | | | | | 235 | | | | 240 |
| | Thr | Val | Glu | Arg | Lys | Cys | Cys | Val | Glu | Cys | Pro | Pro | Cys | Pro | Pro |
| | | | | | 245 | | | | | 250 | | | | 255 | |
| 30 | Pro | Val | Ala | Gly | Pro | Ser | Val | Phe | Leu | Phe | Pro | Pro | Lys | Pro | Asp |
| | | | | 260 | | | | | 265 | | | | | 270 | |
| | Thr | Leu | Met | Ile | Ser | Arg | Thr | Pro | Glu | Val | Thr | Cys | Val | Val | Asp |
| | | | 275 | | | | | 280 | | | | | 285 | | |
| 35 | Val | Ser | His | Glu | Asp | Pro | Glu | Val | Gln | Phe | Asn | Trp | Tyr | Val | Gly |
| | | 290 | | | | | 295 | | | | | 300 | | | |
| | Val | Glu | Val | His | Asn | Ala | Lys | Thr | Lys | Pro | Arg | Glu | Glu | Gln | Asn |
| | 305 | | | | | 310 | | | | | 315 | | | | 320 |
| | Ser | Thr | Phe | Arg | Val | Val | Ser | Val | Leu | Thr | Val | Val | His | Gln | Trp |
| | | | | | 325 | | | | | 330 | | | | 335 | |
| 45 | Leu | Asn | Gly | Lys | Glu | Tyr | Lys | Cys | Lys | Val | Ser | Asn | Lys | Gly | Pro |
| | | | | 340 | | | | | 345 | | | | | 350 | |
| | Ala | Pro | Ile | Glu | Lys | Thr | Ile | Ser | Lys | Thr | Lys | Gly | Gln | Pro | Glu |
| | | | 355 | | | | | 360 | | | | | 365 | | |
| 50 | Pro | Gln | Val | Tyr | Thr | Leu | Pro | Pro | Ser | Arg | Glu | Glu | Met | Thr | Asn |
| | | 370 | | | | | 375 | | | | | 380 | | | |
| | Gln | Val | Ser | Leu | Thr | Cys | Leu | Val | Lys | Gly | Phe | Tyr | Pro | Ser | Ile |
| | 385 | | | | | 390 | | | | | 395 | | | | 400 |
| 55 | Ala | Val | Glu | Trp | Glu | Ser | Asn | Gly | Gln | Pro | Glu | Asn | Asn | Tyr | Thr |

| | 405 | 410 | 415 |
|----|---|-----|---------|
| | Thr Pro Pro Met Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys | | |
| | 420 | 425 | 430 |
| 5 | Leu Thr Val Asp Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys | | |
| | 435 | 440 | 445 |
| 10 | Ser Val Met His Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu | | |
| | 450 | 455 | 460 |
| | Ser Leu Ser Pro Gly Lys | | |
| | 465 | 470 | |
| 15 | <210> 47 | | |
| | <211> 236 | | |
| | <212> PRT | | |
| | <213> Homo sapiens | | |
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| 25 | Phe Pro Gly Ala Arg Cys Asp Ile Gln Met Thr Gln Phe Pro Ser Ser | | |
| | 20 | 25 | 30 |
| | Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser | | |
| | 35 | 40 | 45 |
| 30 | Gln Gly Ile Arg Asn Asp Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys | | |
| | 50 | 55 | 60 |
| 35 | Ala Pro Lys Arg Leu Ile Tyr Ala Ala Ser Arg Leu His Arg Gly Val | | |
| | 65 | 70 | 75 80 |
| | Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr | | |
| | 85 | 90 | 95 |
| 40 | Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln | | |
| | 100 | 105 | 110 |
| | His Asn Ser Tyr Pro Cys Ser Phe Gly Gln Gly Thr Lys Leu Glu Ile | | |
| | 115 | 120 | 125 |
| 45 | Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp | | |
| | 130 | 135 | 140 |
| 50 | Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn | | |
| | 145 | 150 | 155 160 |
| | Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu | | |
| | 165 | 170 | 175 |
| 55 | Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp | | |
| | 180 | 185 | 190 |

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
195 200 205

5 Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
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Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230 235

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<212> PRT
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15 <400> 48
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20 Phe Pro Gly Ala Arg Cys Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
20 25 30

Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser
35 40 45

25 Gln Gly Ile Arg Asn Asp Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys
50 55 60

30 Ala Pro Lys Arg Leu Ile Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val
65 70 75 80

Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr
85 90 95

35 Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln
100 105 110

His Asn Ser Tyr Pro Tyr Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile
115 120 125

40 Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
130 135 140

45 Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
145 150 155 160

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
165 170 175

50 Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
180 185 190

Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
195 200 205

55 Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
210 215 220

Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
 225 230 235

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 <212> PRT
 <213> Homo sapiens

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15 Val Gln Cys Gln Ala Gln Leu Val Glu Ser Gly Gly Gly Leu Val Lys
 20 25 30

Pro Gly Gly Ser Leu Arg Leu Ser Cys Ala Ala Ser Gly Phe Thr Phe
 35 40 45

20 Ser Asp Tyr Tyr Met Ser Trp Ile Arg Gln Ala Pro Gly Lys Gly Leu
 50 55 60

25 Glu Trp Val Ser Tyr Ile Ser Ser Ser Gly Ser Thr Arg Asp Tyr Ala
 65 70 75 80

Asp Ser Val Lys Gly Arg Phe Thr Ile Ser Arg Asp Asn Ala Lys Asn
 85 90 95

30 Ser Leu Tyr Leu Gln Met Asn Ser Leu Arg Ala Glu Asp Thr Ala Val
 100 105 110

Tyr Tyr Cys Val Arg Asp Gly Val Glu Thr Thr Phe Tyr Tyr Tyr Tyr
 115 120 125

35 Tyr Gly Met Asp Val Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
 130 135 140

40 Ala Ser Thr Lys Gly Pro Ser Val Phe Pro Leu Ala Pro Cys Ser Arg
 145 150 155 160

Ser Thr Ser Glu Ser Thr Ala Ala Leu Gly Cys Leu Val Lys Asp Tyr
 165 170 175

45 Phe Pro Glu Pro Val Thr Val Ser Trp Asn Ser Gly Ala Leu Thr Ser
 180 185 190

Gly Val His Thr Phe Pro Ala Val Leu Gln Ser Ser Gly Leu Tyr Ser
 195 200 205

50 Leu Ser Ser Val Val Thr Val Pro Ser Ser Asn Phe Gly Thr Gln Thr
 210 215 220

55 Tyr Thr Cys Asn Val Asp His Lys Pro Ser Asn Thr Lys Val Asp Lys
 225 230 235 240

Thr Val Glu Arg Lys Cys Cys Val Glu Cys Pro Pro Cys Pro Ala Pro

| | 245 | | | | | | | | 250 | | | | 255 | | | |
|----|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | Pro | Val | Ala | Gly | Pro | Ser | Val | Phe | Leu | Phe | Pro | Pro | Lys | Pro | Lys | Asp |
| | | | | 260 | | | | | | 265 | | | | 270 | | |
| 5 | Thr | Leu | Met | Ile | Ser | Arg | Thr | Pro | Glu | Val | Thr | Cys | Val | Val | Val | Asp |
| | | | 275 | | | | | 280 | | | | | 285 | | | |
| 10 | Val | Ser | His | Glu | Asp | Pro | Glu | Val | Gln | Phe | Asn | Trp | Tyr | Val | Asp | Gly |
| | | 290 | | | | | 295 | | | | 300 | | | | | |
| | Val | Glu | Val | His | Asn | Ala | Lys | Thr | Lys | Pro | Arg | Glu | Glu | Gln | Phe | Asn |
| | 305 | | | | | 310 | | | | 315 | | | | | 320 | |
| 15 | Ser | Thr | Phe | Arg | Val | Val | Ser | Val | Leu | Thr | Val | Val | His | Gln | Asp | Trp |
| | | | | | 325 | | | | | 330 | | | | | 335 | |
| | Leu | Asn | Gly | Lys | Glu | Tyr | Lys | Cys | Lys | Val | Ser | Asn | Lys | Gly | Leu | Pro |
| 20 | | | | 340 | | | | | | 345 | | | | 350 | | |
| | Ala | Pro | Ile | Glu | Lys | Thr | Ile | Ser | Lys | Thr | Lys | Gly | Gln | Pro | Arg | Glu |
| | | | 355 | | | | | 360 | | | | | 365 | | | |
| 25 | Pro | Gln | Val | Tyr | Thr | Leu | Pro | Pro | Ser | Arg | Glu | Glu | Met | Thr | Lys | Asn |
| | | 370 | | | | | 375 | | | | | 380 | | | | |
| | Gln | Val | Ser | Leu | Thr | Cys | Leu | Val | Lys | Gly | Phe | Tyr | Pro | Ser | Asp | Ile |
| | 385 | | | | | 390 | | | | | 395 | | | | 400 | |
| 30 | Ala | Val | Glu | Trp | Glu | Ser | Asn | Gly | Gln | Pro | Glu | Asn | Asn | Tyr | Lys | Thr |
| | | | | | 405 | | | | | 410 | | | | | 415 | |
| | Thr | Pro | Pro | Met | Leu | Asp | Ser | Asp | Gly | Ser | Phe | Phe | Leu | Tyr | Ser | Lys |
| 35 | | | | 420 | | | | | | 425 | | | | 430 | | |
| | Leu | Thr | Val | Asp | Lys | Ser | Arg | Trp | Gln | Gln | Gly | Asn | Val | Phe | Ser | Cys |
| | | | 435 | | | | | 440 | | | | | 445 | | | |
| 40 | Ser | Val | Met | His | Glu | Ala | Leu | His | Asn | His | Tyr | Thr | Gln | Lys | Ser | Leu |
| | | 450 | | | | | 455 | | | | | 460 | | | | |
| | Ser | Leu | Ser | Pro | Gly | Lys | | | | | | | | | | |
| | 465 | | | | | 470 | | | | | | | | | | |
| 45 | | | | | | | | | | | | | | | | |
| | <210> 50 | | | | | | | | | | | | | | | |
| | <211> 473 | | | | | | | | | | | | | | | |
| | <212> PRT | | | | | | | | | | | | | | | |
| | <213> Homo sapiens | | | | | | | | | | | | | | | |
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| | <400> 50 | | | | | | | | | | | | | | | |
| | Met | Glu | Phe | Gly | Leu | Ser | Trp | Val | Phe | Leu | Val | Ala | Ile | Ile | Lys | Gly |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| 55 | Val | Gln | Cys | Gln | Val | Gln | Leu | Val | Glu | Ser | Gly | Gly | Gly | Leu | Val | Lys |
| | | | | 20 | | | | | | 25 | | | | | 30 | |

| | | | | | | | | | | | | | | | | | |
|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | Pro | Gly | Gly | Ser | Leu | Arg | Leu | Ser | Cys | Ala | Ala | Ser | Gly | Phe | Thr | Phe | |
| | | | 35 | | | | | 40 | | | | | 45 | | | | |
| 5 | Ser | Asp | Tyr | Tyr | Met | Ser | Trp | Ile | Arg | Gln | Ala | Pro | Gly | Lys | Gly | Leu | |
| | | 50 | | | | | 55 | | | | | 60 | | | | | |
| | Glu | Trp | Val | Ser | Tyr | Ile | Ser | Ser | Ser | Gly | Ser | Thr | Ile | Tyr | Tyr | Ala | |
| | 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| 10 | Asp | Ser | Val | Lys | Gly | Arg | Phe | Thr | Ile | Ser | Arg | Asp | Asn | Ala | Lys | Asn | |
| | | | | | 85 | | | | | 90 | | | | | 95 | | |
| | Ser | Leu | Tyr | Leu | Gln | Met | Asn | Ser | Leu | Arg | Ala | Glu | Asp | Thr | Ala | Val | |
| | | | | 100 | | | | | 105 | | | | | 110 | | | |
| 15 | Tyr | Tyr | Cys | Ala | Arg | Val | Leu | Arg | Phe | Leu | Glu | Trp | Leu | Leu | Tyr | Tyr | |
| | | | 115 | | | | | 120 | | | | | 125 | | | | |
| | Tyr | Tyr | Tyr | Tyr | Gly | Met | Asp | Val | Trp | Gly | Gln | Gly | Thr | Thr | Val | Thr | |
| 20 | | 130 | | | | | 135 | | | | | 140 | | | | | |
| | Val | Ser | Ser | Ala | Ser | Thr | Lys | Gly | Pro | Ser | Val | Phe | Pro | Leu | Ala | Pro | |
| | 145 | | | | | 150 | | | | | 155 | | | | | 160 | |
| 25 | Cys | Ser | Arg | Ser | Thr | Ser | Glu | Ser | Thr | Ala | Ala | Leu | Gly | Cys | Leu | Val | |
| | | | | | 165 | | | | | 170 | | | | | 175 | | |
| | Lys | Asp | Tyr | Phe | Pro | Glu | Pro | Val | Thr | Val | Ser | Trp | Asn | Ser | Gly | Ala | |
| | | | | 180 | | | | | 185 | | | | | 190 | | | |
| 30 | Leu | Thr | Ser | Gly | Val | His | Thr | Phe | Pro | Ala | Val | Leu | Gln | Ser | Ser | Gly | |
| | | | 195 | | | | | 200 | | | | | 205 | | | | |
| | Leu | Tyr | Ser | Leu | Ser | Ser | Val | Val | Thr | Val | Pro | Ser | Ser | Asn | Phe | Gly | |
| 35 | | 210 | | | | | 215 | | | | | 220 | | | | | |
| | Thr | Gln | Thr | Tyr | Thr | Cys | Asn | Val | Asp | His | Lys | Pro | Ser | Asn | Thr | Lys | |
| | 225 | | | | | 230 | | | | | 235 | | | | | 240 | |
| 40 | Val | Asp | Lys | Thr | Val | Glu | Arg | Lys | Cys | Cys | Val | Glu | Cys | Pro | Pro | Cys | |
| | | | | | 245 | | | | | 250 | | | | | 255 | | |
| | Pro | Ala | Pro | Pro | Val | Ala | Gly | Pro | Ser | Val | Phe | Leu | Phe | Pro | Pro | Lys | |
| | | | | 260 | | | | | 265 | | | | | 270 | | | |
| 45 | Pro | Lys | Asp | Thr | Leu | Met | Ile | Ser | Arg | Thr | Pro | Glu | Val | Thr | Cys | Val | |
| | | | 275 | | | | | 280 | | | | | 285 | | | | |
| | Val | Val | Asp | Val | Ser | His | Glu | Asp | Pro | Glu | Val | Gln | Phe | Asn | Trp | Tyr | |
| 50 | | 290 | | | | | 295 | | | | | 300 | | | | | |
| | Val | Asp | Gly | Val | Glu | Val | His | Asn | Ala | Lys | Thr | Lys | Pro | Arg | Glu | Glu | |
| | 305 | | | | | 310 | | | | | 315 | | | | | 320 | |
| 55 | Gln | Phe | Asn | Ser | Thr | Phe | Arg | Val | Val | Ser | Val | Leu | Thr | Val | Val | His | |
| | | | | | 325 | | | | | 330 | | | | | 335 | | |

| | | | | | | | | | | | | | | | | | |
|----|-------|--------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| | Gln | Asp | Trp | Leu | Asn | Gly | Lys | Glu | Tyr | Lys | Cys | Lys | Val | Ser | Asn | Lys | |
| | | | | 340 | | | | | 345 | | | | | 350 | | | |
| 5 | Gly | Leu | Pro | Ala | Pro | Ile | Glu | Lys | Thr | Ile | Ser | Lys | Thr | Lys | Gly | Gln | |
| | | | 355 | | | | | 360 | | | | | 365 | | | | |
| | Pro | Arg | Glu | Pro | Gln | Val | Tyr | Thr | Leu | Pro | Pro | Ser | Arg | Glu | Glu | Met | |
| | | 370 | | | | | 375 | | | | | 380 | | | | | |
| 10 | Thr | Lys | Asn | Gln | Val | Ser | Leu | Thr | Cys | Leu | Val | Lys | Gly | Phe | Tyr | Pro | |
| | 385 | | | | | 390 | | | | | 395 | | | | | 400 | |
| | Ser | Asp | Ile | Ala | Val | Glu | Trp | Glu | Ser | Asn | Gly | Gln | Pro | Glu | Asn | Asn | |
| | | | | | 405 | | | | | 410 | | | | | 415 | | |
| 15 | Tyr | Lys | Thr | Thr | Pro | Pro | Met | Leu | Asp | Ser | Asp | Gly | Ser | Phe | Phe | Leu | |
| | | | | 420 | | | | | 425 | | | | | 430 | | | |
| | Tyr | Ser | Lys | Leu | Thr | Val | Asp | Lys | Ser | Arg | Trp | Gln | Gln | Gly | Asn | Val | |
| 20 | | | 435 | | | | | 440 | | | | | 445 | | | | |
| | Phe | Ser | Cys | Ser | Val | Met | His | Glu | Ala | Leu | His | Asn | His | Tyr | Thr | Gln | |
| | | 450 | | | | | 455 | | | | | 460 | | | | | |
| 25 | Lys | Ser | Leu | Ser | Leu | Ser | Pro | Gly | Lys | | | | | | | | |
| | 465 | | | | | 470 | | | | | | | | | | | |
| 30 | <210> | 51 | | | | | | | | | | | | | | | |
| | <211> | 236 | | | | | | | | | | | | | | | |
| | <212> | PRT | | | | | | | | | | | | | | | |
| | <213> | Homo sapiens | | | | | | | | | | | | | | | |
| | <400> | 51 | | | | | | | | | | | | | | | |
| 35 | Met | Asp | Met | Arg | Val | Pro | Ala | Gln | Leu | Leu | Gly | Leu | Leu | Leu | Leu | Trp | |
| | 1 | | | | 5 | | | | | 10 | | | | | 15 | | |
| | Phe | Pro | Gly | Ala | Arg | Cys | Asp | Ile | Gln | Met | Thr | Gln | Ser | Pro | Ser | Ser | |
| | | | | 20 | | | | | 25 | | | | | 30 | | | |
| 40 | Leu | Ser | Ala | Ser | Val | Gly | Asp | Arg | Val | Thr | Phe | Thr | Cys | Arg | Ala | Ser | |
| | | | 35 | | | | | 40 | | | | | 45 | | | | |
| | Gln | Asp | Ile | Arg | Arg | Asp | Leu | Gly | Trp | Tyr | Gln | Gln | Lys | Pro | Gly | Lys | |
| 45 | | 50 | | | | | 55 | | | | | 60 | | | | | |
| | Ala | Pro | Lys | Arg | Leu | Ile | Tyr | Ala | Ala | Ser | Arg | Leu | Gln | Ser | Gly | Val | |
| | 65 | | | | | 70 | | | | | 75 | | | | | 80 | |
| 50 | Pro | Ser | Arg | Phe | Ser | Gly | Ser | Gly | Ser | Gly | Thr | Glu | Phe | Thr | Leu | Thr | |
| | | | | | 85 | | | | | 90 | | | | | 95 | | |
| | Ile | Ser | Ser | Leu | Gln | Pro | Glu | Asp | Phe | Ala | Thr | Tyr | Tyr | Cys | Leu | Gln | |
| | | | | 100 | | | | | 105 | | | | | 110 | | | |
| 55 | His | Asn | Asn | Tyr | Pro | Arg | Thr | Phe | Gly | Gln | Gly | Thr | Glu | Val | Glu | Ile | |
| | | | 115 | | | | | 120 | | | | | 125 | | | | |

Ile Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
130 135 140

5 Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn
145 150 155 160

Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu
165 170 175

10 Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp
180 185 190

15 Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr
195 200 205

Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser
210 215 220

20 Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys
225 230 235

<210> 52
25 <211> 236
<212> PRT
<213> Homo sapiens

<400> 52

30 Met Asp Met Arg Val Pro Ala Gln Leu Leu Gly Leu Leu Leu Leu Trp
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Phe Pro Gly Ala Arg Cys Asp Ile Gln Met Thr Gln Ser Pro Ser Ser
20 25 30

35 Leu Ser Ala Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ala Ser
35 40 45

Gln Gly Ile Arg Asn Asp Leu Gly Trp Tyr Gln Gln Lys Pro Gly Lys
50 55 60

Ala Pro Lys Arg Leu Ile Tyr Ala Ala Ser Ser Leu Gln Ser Gly Val
65 70 75 80

45 Pro Ser Arg Phe Ser Gly Ser Gly Ser Gly Thr Glu Phe Thr Leu Thr
85 90 95

Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Tyr Cys Leu Gln
100 105 110

50 His Asn Ser Tyr Pro Trp Thr Phe Gly Gln Gly Thr Lys Val Glu Ile
115 120 125

Lys Arg Thr Val Ala Ala Pro Ser Val Phe Ile Phe Pro Pro Ser Asp
130 135 140

55 Glu Gln Leu Lys Ser Gly Thr Ala Ser Val Val Cys Leu Leu Asn Asn

| | | | | | | | |
|----|---|-----|-----|-----|-----|-----|-----|
| | 145 | | 150 | | 155 | | 160 |
| | Phe Tyr Pro Arg Glu Ala Lys Val Gln Trp Lys Val Asp Asn Ala Leu | | | | | | |
| | | 165 | | 170 | | 175 | |
| 5 | Gln Ser Gly Asn Ser Gln Glu Ser Val Thr Glu Gln Asp Ser Lys Asp | | | | | | |
| | | 180 | | 185 | | 190 | |
| 10 | Ser Thr Tyr Ser Leu Ser Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr | | | | | | |
| | | 195 | | 200 | | 205 | |
| | Glu Lys His Lys Val Tyr Ala Cys Glu Val Thr His Gln Gly Leu Ser | | | | | | |
| | | 210 | | 215 | | 220 | |
| 15 | Ser Pro Val Thr Lys Ser Phe Asn Arg Gly Glu Cys | | | | | | |
| | 225 | | 230 | | 235 | | |
| 20 | <210> 53 | | | | | | |
| | <211> 326 | | | | | | |
| | <212> DNA | | | | | | |
| | <213> Artificial Sequence | | | | | | |
| 25 | <400> 53 | | | | | | |
| | gacatccaga tgacccagty tccatcctcc ctgtctgcat ctgtaggaga cagagtcacc 60 | | | | | | |
| | wtcacttgcc gggcaagtca ggrcattaga mrtgatttag gctggtwtca gcagaaacca 120 | | | | | | |
| | gggaaagcyc ctaagcgct gatctatgct gcatccmrwt trcammgwgg ggtcccatca 180 | | | | | | |
| | aggttcagcg gcagtggatc tgggacagaa ttcactctca caatcagcmg cctgcagcct 240 | | | | | | |
| | gaagattttg caacttatta ctgtytacar cataatartrt ayckkybsns ktttyggcsrr 300 | | | | | | |
| 30 | gggaccrags tggaratcaw acgaac | | | | | | 326 |
| 35 | <210> 54 | | | | | | |
| | <211> 322 | | | | | | |
| | <212> DNA | | | | | | |
| | <213> Artificial Sequence | | | | | | |
| 40 | <400> 54 | | | | | | |
| | gacatccaga tgacccagtc tccatcctcc ctgtctgcat ctgyaggaga cagagtcacc 60 | | | | | | |
| | atcacttgcc gggcaagtca gagcattaga asctwttaa attggtatca gcagaaacca 120 | | | | | | |
| | gggaaagccc ctaarctcct gatcyatgyt gcatccagtt trcaargtg ggtcccatca 180 | | | | | | |
| | aggttcagtg gcagtggatc tgggacagat ttcactctca ccatcagcag tctgcaacct 240 | | | | | | |
| | gaagattttg caacttacta ctgtcaacag agttacartt cccayyhc tttcggcgga 300 | | | | | | |
| 45 | gggaccaagg tggagatcaa ac | | | | | | 322 |
| 50 | <210> 55 | | | | | | |
| | <211> 325 | | | | | | |
| | <212> DNA | | | | | | |
| | <213> Artificial Sequence | | | | | | |
| 55 | <400> 55 | | | | | | |
| | gaaattgtgt tgacgcagtc tccaggcacc ctgtctttgt ctccagggga aagagccacc 60 | | | | | | |
| | ctctcctgya gggccagtca gagggtmgt rgcagstact tagcctggta ccagcagaaa 120 | | | | | | |
| | cctggccagg ctcccaggct cctcatctat ggtgcatcca gcagggccac tggcatccca 180 | | | | | | |
| | gacaggttca gtggcagtggt gtctgggaca gacttcactc tcaccatcag cagactggag 240 | | | | | | |
| | cctgaagatt ttgcagtggt ttactgtcag cagtatggta gytacctcs nacgttcggc 300 | | | | | | |

caagggacca aggtggaaat caaac

325

5 <210> 56
<211> 376
<212> DNA
<213> Artificial Sequence

<400> 56
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tcctgtgcag cctctggatt cacyttcagt gactactaya tgagctggat ccgccaggct 120
ccaggggaagg ggctggartg ggtttcatac attagtagta gtggtagtag cakakactac 180
gcagactctg tgaagggccc attcaccatc tccagggaca acgccaagaa ctactgttat 240
ctgcaaataga acagcctgag agccgaggac acggccgtgt attactgtgy gagagatgga 300
15 gtggaaacta ctttttacta ctactactac ggtatggacg tctggggcca agggaccacg 360
gtcaccgtct cctcag 376

20 <210> 57
<211> 358
<212> DNA
<213> Artificial Sequence

<400> 57
25 caggtgcagc tgcaggagtc gggcccagga ctggtgaagc cttcggagac cctgtccctc 60
acctgcactg tctctggtgg ctccatcagt arttactact ggagctggat ccggcagccc 120
gccgggaagg gactggagtg gattgggctg atctatacca gtgggagcmc caactacaac 180
ccctccctca agagtcgagt caccatgtca gtagacacgt ccaagaacca gttctccctg 240
aagctgarct ctgtgaccgc cgcggacacg gccgtgtatt actgtgcggg aacgattttt 300
30 ggagtgggta ttatctttga ctactggggc cagrganccc tggtcaccgt ctccctcag 358

35 <210> 58
<211> 418
<212> DNA
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40 caggtgcagc tgttggagtc tgggggaggc ttggtacagc ctgggggggtc cctgagactc 60
tcctgtrcag cctctggatt cacccttagc agctatgcc a tgactgggt ccgccaggct 120
ccaggggaagg ggctggagtg ggtctcagst attastggka gtggtggtab yacatwctac 180
gcagactccg tgaagggccc gttcaccatc tccagagaca attccargam cacgctgtat 240
ctgcaaataga acagcctgag agccgaggac acggccgtat attactgtgc gaaagatctk 300
ggctrsksyg actyttacta ctactactac ggtatggacg tctggggcca agggacyacg 360
45 gtgattatga gttgggtcga cccctggggc cagggaaacc tggtcaccgt ctccctcag 418

50 <210> 59
<211> 364
<212> DNA
<213> Artificial Sequence

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acctgcactg tctctggtgg ctccatcagt agttactact ggagytggat ccggcagccc 120
ccaggggaagg gactggagtg gattgggtat atctattaca gtgggagcac caactacaac 180
ccctccctca agagtcgact caccatatca gtagacacgt ccaagaacca gttctccctg 240

aagctgagyt ctgtgaccgc tgcggacacg gccgtgtatt actgtgccag gacgtatagc 300
agttcgttct actactacgg tatggacgtc tggggccaag ggaccacggt caccgtctcc 360
tcag 364

5

<210> 60
<211> 15
<212> PRT
<213> Artificial Sequence

10

<400> 60
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
1 5 10 15

15